UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,242	09/30/2003	Chris A. Armbruster	Armbruster 1-1-1/075903-2	3500

29391 7590 01/23/2008

BEUSSE WOLTER SANKS MORA & MAIRE, P. A.
390 NORTH ORANGE AVENUE
SUITE 2500
ORLANDO, FL 32801

EXAMINER	
SAINDON, WILLIAM V	

ART UNIT	PAPER NUMBER
3623	

MAIL DATE	DELIVERY MODE
01/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,242	ARMBRUSTER ET AL.	
	Examiner	Art Unit	
	WILLIAM V. SAINDON	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following NON FINAL Office Action is in response to Applicant's submission received September 30, 2003. Claims 1-21 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15's step i recites a "material buffer factor," but no such buffer exists, making it impossible to determine the inventory buffer. Furthermore, "inventory buffer" is determined twice, in step h and step i. Therefore, the scope of the claim cannot be resolved and the Examiner is forced to not consider step i.

As to claim 18, in step h4, a number of upside demand change values must be determined. However, it is unclear from the claims or specification as to how this determination is made, or how to consider them. Furthermore, step h6 cites "the material buffer factor," but no previous mention of a material buffer factor was made. Therefore, the Examiner will construe claim 18 to mean that a safety stock is calculated.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-9, 11, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakuma et al. (US 2004/0059649) (hereinafter Sakuma).

As to claim 1, Sakuma discloses a method for determining an inventory buffer for use by a seller of products to a buyer, comprising:

(a) selecting a demand sample interval (see Fig. 10, noting each interval is one week);

(b) determining the buyer's anticipated demand for the sample interval (see id., noting planned demand);

(c) determining the buyer's realized demand for the sample interval (see id., noting that actual demand is known via the remainder calculation);

(d) repeating the steps (b) and (c) to generate a plurality of anticipated demand and realized demand value pairs (see id., noting that many weeks are shown);

(e) determining a plurality of demand change values from each one of the like plurality of anticipated demand and realized demand value pairs (see id., noting that many remainders are shown);

(f) modeling the plurality of demand change values as a probability distribution function (see id., noting that the accumulated remainder is modeled as a normal distribution);

(g) determining statistical parameters of the probability distribution function (see id., noting that normal distributions have mu and sigma squared parameters); and

(h) determining the inventory buffer from the statistical parameters (see id., noting that safety stock is calculated via one of the shown formulas).

As to claim 2, Sakuma discloses the statistical parameters comprise the mean and the standard deviation (see id., noting that mu and sigma squared correspond to mean and standard deviation).

As to claim 3, nothing is claimed, only definitions of possible events are given. Therefore, Sakuma discloses these events when the realized demand is less than the anticipated demand, and wherein a downside demand change value occurs when the anticipated demand is less than the realized demand.

As to claim 4, Sakuma discloses: (e) determining a plurality of upside demand change values from the plurality of demand change values for which the realized demand is greater than the anticipated demand (see Fig. 11, noting that remainders are calculated, some of which are negative).

As to claim 5, Sakuma discloses: (f) modeling the plurality of upside demand change values as a probability distribution function (see id., noting that the remainders are used in a pdf with a sample mean, sum of squares, variance, and other standard statistical parameters that follow any data set).

As to claim 6, Sakuma discloses the probability distribution function comprises a normal probability distribution function (see Fig. 10, noting the normal pdf).

As to claim 7, Sakuma discloses step (b) is executed at a beginning of each sample interval (see Fig. 10, noting anticipated demand is made at the beginning, in the "present week").

As to claim 8, Sakuma discloses step (c) is executed at an end of each sample interval (see Fig. 11, noting that in order to calculate a remainder you have to know the actual for that time period).

As to claim 9, Sakuma discloses sample interval is one week (see Fig. 10, noting weeks is the interval used).

As to claim 11, Sakuma discloses step (h) further comprises:

(h1) determining a shipping confidence factor (see Fig. 11, noting that alpha is the safety factor that provides the level of confidence that a product will not be depleted when requested for shipping, i.e. a shipping confidence factor),

(h2) determining the inventory buffer from the shipping confidence factor and the statistical parameters (see id., noting that the confidence factor is used in determining the safety stock level).

As to claim 14, Sakuma discloses steps (b) and (c) are periodically executed over a predetermined time horizon (see Fig. 10, noting that the time horizon is a week), and

wherein the step (e) further comprises determining a plurality of demand change values from each one of the like plurality of anticipated demand and realized demand

value pairs on a rolling forward basis for the predetermined time horizon, such that an earliest in time one of the plurality of demand change values is discarded and replaced by a latest in time demand change value (see id., noting that week -1 from present is discarded, therefore the predictions are on a rolling forward basis).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 10, 12-13, and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakuma as applied to claim 1 above, and further in view of Examiner's Official Notice.

As to claim 10, Sakuma discloses step (d) of claim 1, however, Sakuma fails to explicitly disclose that the pairs of the step (d) comprises 26 anticipated demand and realized demand pairs.

However, the Examiner takes Official Notice that it is old and well known in the art to set any feasible time horizon for forecasting with the predictable result of providing a forecast for that time horizon. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to specify that the safety stock determination method of Sakuma would use a 26 period forecast horizon with the predictable result of providing a half year planning horizon.

As to claim 12, Sakuma discloses step (e) further comprises:

(e1) determining a difference between the anticipated demand and the realized demand for each demand change value pair (see Fig. 10, noting each remainder is calculated).

But Sakuma fails to explicitly disclose: (e2) determining a ratio of the difference and the anticipated demand, wherein the ratio comprises one of the plurality of demand change values.

However, the Examiner takes Official Notice that ratios are well known to be calculated between two numbers with the predictable result of providing a relative magnitude of one quantity relative to another. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to specify that the safety stock determination method of Sakuma would calculate the ratio between the actual and

predicted demand for the purpose of providing a relative magnitude of the demand change.

As to claim 13, Sakuma fails to explicitly disclose step (f) further comprises modeling the plurality of demand change values as a probability distribution function with the plurality of demand change values plotted on an x-axis and a number representing the number of occurrences for each demand change value from among the plurality of demand change values plotted on the y-axis.

However, the Examiner takes Official Notice that it is old and well known in the art to graph two related values, with the predictable result of allowing a person to have a visual representation of the relationship between the values. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to specify that the safety stock determination method of Sakuma would graph the remainders with the predictable result of allowing a user to see any trends in the remainders.

Claim 15 is rejected for the same reason as claim 1, except that Sakuma fails to explicitly disclose that the mean and standard deviation are summed to determine an inventory buffer factor (see Fig. 10, noting that safety stock calculation is based on std. dev. of standard normal distributions, whose means are always zero).

However, the Examiner takes Official Notice that it is old and well known in the art that mean + std. deviation is used to determine a likely maximum of a function when means are non-zero. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that had the distributions of Sakuma been

anything but standard normal distributions, then the safety stock calculation would include the mean plus standard deviation instead of just the standard deviation with the predictable result of providing the likely maximum value. Because Sakuma only deals with means having a value of zero, the mu was simply dropped from consideration.

As to claims 16 and 17, Sakuma fails to explicitly disclose volume weighted means or standard deviations. However, the Examiner takes Official Notice that both are old and well known in the art to provide the predictable result of calculating a mean or standard deviation. Applicant admits such as prior art in paragraph 26. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the mean and standard deviation of the data in Sakuma could be calculated according to the well known volume weighting techniques for the purpose of allowing more influential data points to weigh more heavily on the mean's calculation.

As to claim 18, Sakuma discloses step (g) further comprises:

(g1) determining the mean of the probability density function; and wherein the step (h) further comprises (see Fig. 10, noting the mean is 0):

(h1) determining a plurality of downside demand change values from the plurality of anticipated" demand and realized demand value pairs, wherein a downside demand change value comprises a demand change value for which the realized demand is less than the anticipated demand (see Fig. 11, noting that remainders are calculated, the remainders being positive or negative);

(h2) determining a relationship between the plurality of downside demand change values and the plurality of upside demand change values (see Fig. 10, noting

that the accumulated remainder shows the relationship of all of the values to one another);

(h3) selecting a shipping confidence factor (see Fig. 11, noting an alpha is chosen),

[calculating a safety stock based on the above] (see Fig. 11, noting a safety stock is calculated using data and a confidence factor).

Claims 19 and 20 are rejected for similar reasons as claims 1, 4, and 5, noting that it is obvious to apply inventory buffers for any applicable inventory item.

As to claim 21, Sakuma discloses a method for determining an inventory buffer. It would have been obvious to a person having ordinary skill in the art at the time of invention to apply a buffer for any applicable production processes, for the purpose of using a known method to solve a known problem.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892, noting especially the following:

Crosswhite (US 6,611,726) discloses optimizing a forecast by optimizing the error values of the forecast.

Fields et al. (US 5,459,656) disclose forecasting demand using historical demand and revised projections based upon forecast error.

Stephen C. Graves, "A Single-Item Inventory Model for a Nonstationary Demand Process," Manuf. & Service Op. Mgmt, Vol. 1, No. 1, p. 50 (1999) discloses a demand

model using the difference between an actual and a forecasted demand to calculate a future demand.

Gary D. Eppen & R. Kipp Martin, "Determining Safety Stock in the Presence of Stochastic Lead Time and Demand," Management Science, Vol. 34, No. 11, p. 1380 (Nov. 1988) disclose using the variance of forecast errors to calculate a safety stock.

T. Hillman Willis & Carroll D. Aby, Jr., "The Role of Forecasts In Closed-Loop Manufacturing Systems," J. Bus. Forecasting Methods & Sys., Vol. 7, No. 2, p. 9 (Summer 1988), disclose that in forecasts, the difference between actual and forecasted demand should be monitored and modeled to provide better estimates.

S.T. Enns, "MRP performance effects due to forecast bias and demand uncertainty," 138 Euro. J. Op. Res. 87 (2002), disclose the analysis of forecasting bias as a mechanism to create safety stock and shipment timing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William V. Saindon whose telephone number is (571)270-3026. The examiner can normally be reached on M-F 7:30-5; alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/wvs/

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600